

# ASN (RDA) CHIEF ENGINEER

## Naval Collaborative Engineering Environment Applications

28-30 June 2005

Ms. Barbara Vaughn  
RDA CHENG NCEE Director

Approved for public release; distribution is unlimited



# Topics

---

**RDA**  
**CHIEF**  
**ENGINEER**

- CHENG Organization
- NCEE Purpose
- NCEE Functions
- NCEE Ongoing Activities



***“We need to create a high performing organization that collaborates across the entire Navy community.”***

***Secretary John Young***

***“To foster cross-organizational collaboration for SE, the SE community needs standard tools and web-based means to enable collaboration...”***

***OSD Town Meeting Recommendation***



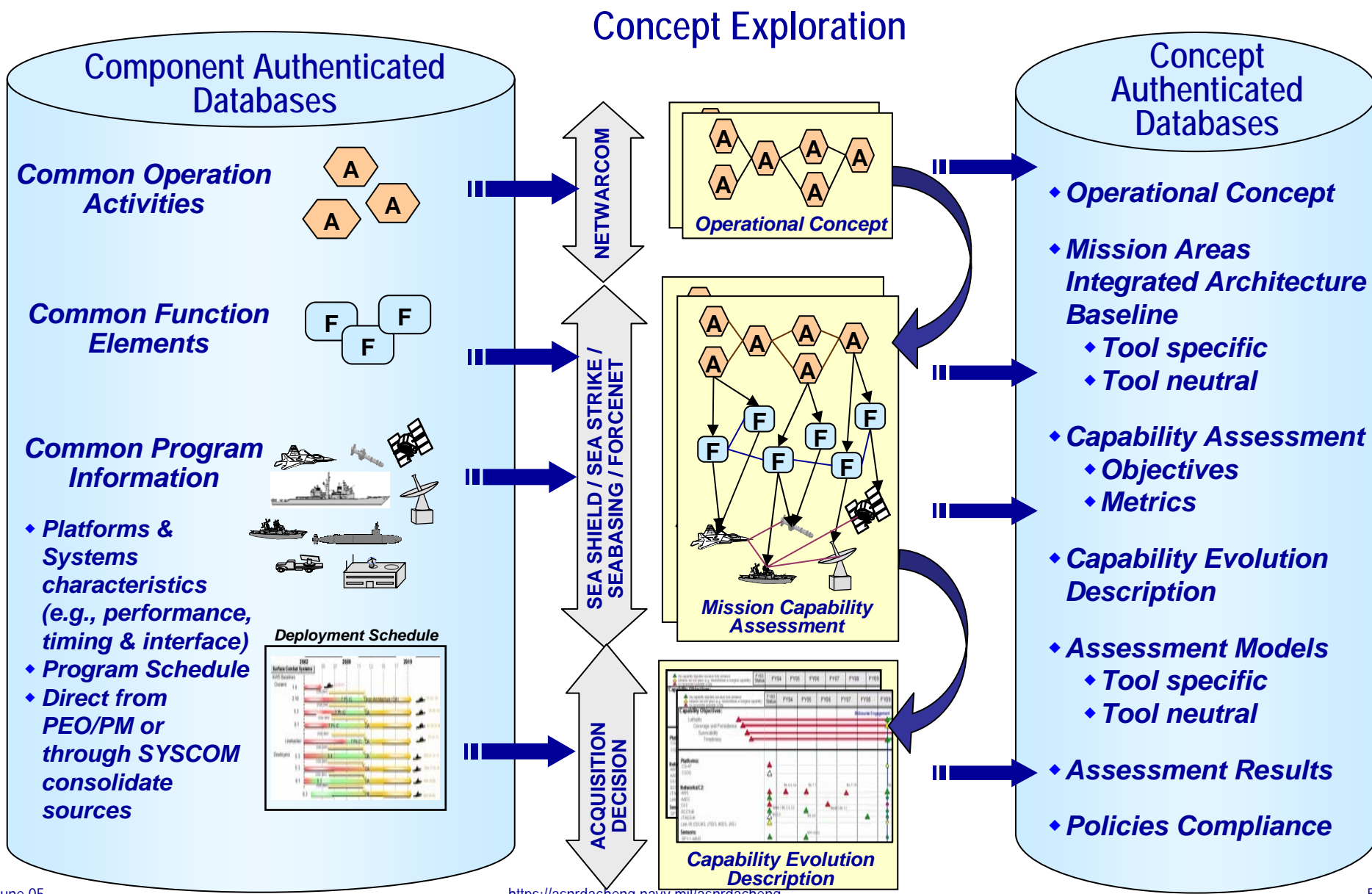
# Purpose of NCEE Directorate

RDA  
CHIEF  
ENGINEER

- To provide an integrated digital environment that:
  - Enhances the cooperation and exchange of data, information, and knowledge among Naval stakeholders engaged in activities directed toward assuring integrated and interoperable Naval force systems.
  - Enables the integration and interoperability of Naval force systems across the spectrum of the Naval acquisition process.

Based on Both E-Business and E-Systems Engineering Capabilities

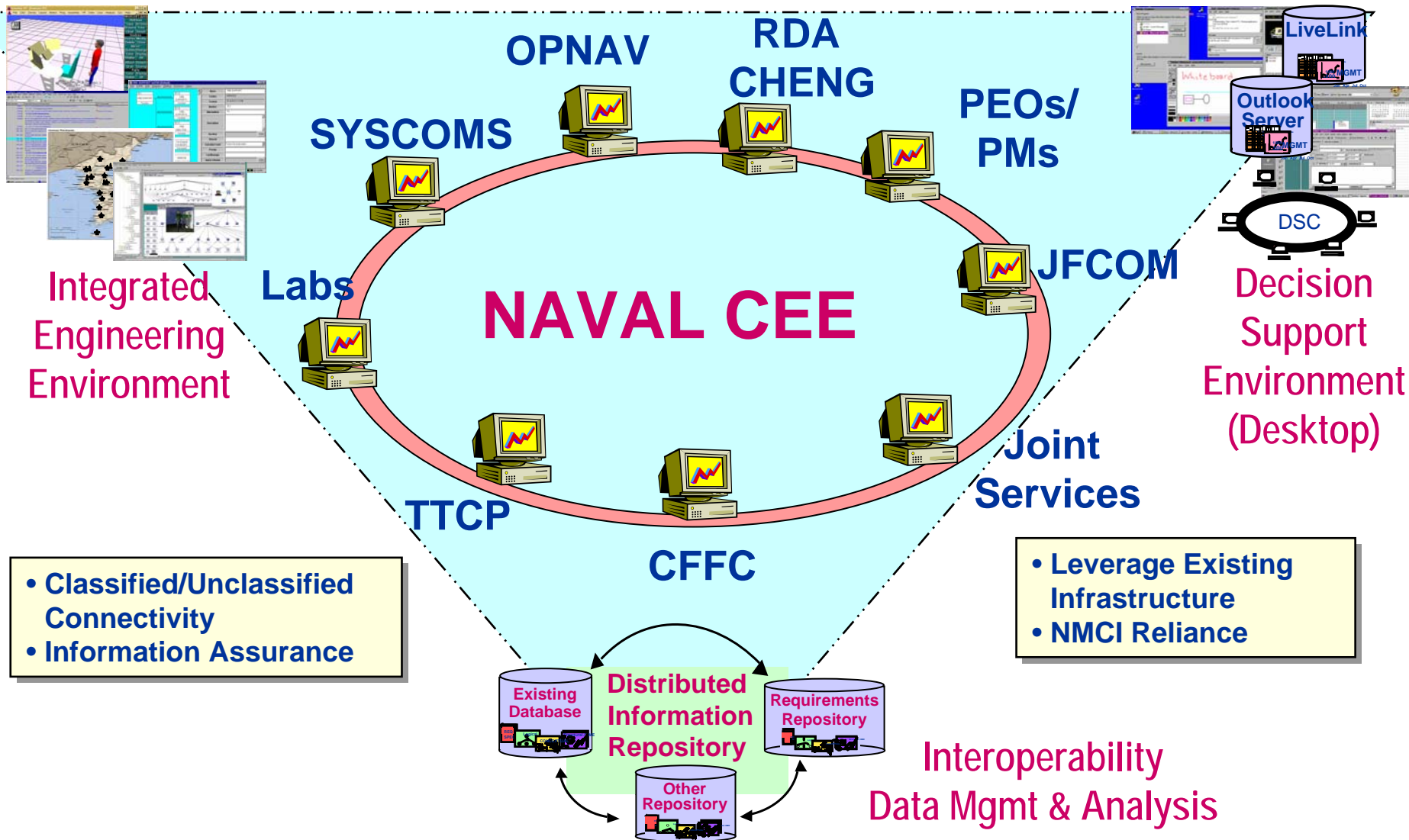






# Naval Collaborative Engineering Environment

**RDA  
CHIEF  
ENGINEER**



**Classified and Unclassified Connectivity to Enable Stakeholder Collaboration**



# NCEE Website and Workspace Applications



# FORCENet Implementation Tool Workspace

RDA  
CHIEF  
ENGINEER

## Individual or Nested Workspaces For Workgroups

The screenshot shows the FORCENet Implementation Tool Workspace interface. The address bar displays <https://workspace.asnrdacheng.navy.mil/FIT/default.aspx>. The page is labeled "UNCLASSIFIED". The main content area is titled "FIT Workspace Home" and describes it as a collaborative workspace. It features several sections: "Announcements", "Shared Documents", "Events", "Tasks - (Series Items)", and "Links".

**Team Informing**: Callout pointing to the "Announcements" section.

**Documents Sharing**: Callout pointing to the "Shared Documents" section.

**Events Tracking**: Callout pointing to the "Events" section.

**Tasks Assigning & Tracking**: Callout pointing to the "Tasks - (Series Items)" section.

**User Access Controlling**: Callout pointing to the "Access denied" message under the "Tasks - (Series Items)" section.

**References Linking**: Callout pointing to the "Links" section.

**Shared Documents Table**

Type	Name	Modified By
Document	FINAL FIT Fn Eng Con	Marlen Zigler
Folder	NCEE TEMs	Jessica Foster

**Events Table**

Date/Time	Event
6/27/2005 8:30 AM	Monday FIT Synch Meeting Monday FIT Synch Meeting -- get details from Battle Rhythm
6/28/2005 5:00 AM	FORCENet Engineering Conference FIT will have member demos all three days. June 30, FIT track will involve an entire day of presentations.
6/29/2005 9:00 AM	FIBL Update Meeting FIBL development group reports to FIT project office on tasking status, issues, schedule and budget for FIBL project.
6/29/2005 1:30 PM	Wednesday FIT Synch Meeting Wednesday FIT Synch Meeting: Team members report on progress made, get questions answered, and tackle pressing issues as a group (if needed).
6/29/2005 6:30 PM	Dinner With Barbara Vaughn and Cheryl Walton
7/4/2005 12:00 AM	Tom on Leave
7/4/2005 12:00 AM	Jessica on Leave
7/4/2005 12:00 AM	Marlen on Leave
7/4/2005 8:30 AM	Monday FIT Synch Meeting Monday FIT Synch Meeting -- get details from Battle Rhythm
7/6/2005 9:00 AM	FIBL Update Meeting FIBL development group reports to FIT project office on tasking status, issues, schedule and budget for FIBL project.

**Links**

- FORCENet Implementation Baseline (FIBL)
- DoD Architecture Repository (DARS)
- DoN Application & Database Management System (DADMS)
- FORCENet Innovation Research Enterprise (FIRE)
- Marine Corps Architecture Support Environment (MCASE)
- SHIPMAIN
- Naval Tool for Interoperability Risk Assessment (NTIRA)
- Naval Collaborative Engineering Environment (NCEE)
- FIBL Workspace






# ASN RDA CHENG Tools Access

RDA  
CHIEF  
ENGINEER

Address <https://asnrdacheng.navy.mil/toolbox.htm> Go Links

This is an official U.S. Navy web site

 **NAVAL COLLABORATIVE ENGINEERING ENVIRONMENT**









Home | Toolbox | Sitemap | Feedback

## Toolbox

Home  
Feedback  
Account Request  
Toolbox  
Privacy/Security  
Section 508 Info  
PKI Cert Info  
External Links  
Site Map

## NCEE Toolbox

**Disclaimer:** Areas of this Server(s) link to other Web Information Systems which are operated by other government organizations, commercial firms, educational institutions, and private parties. The appearance of external hyperlinks does not constitute endorsement by the U.S. Department of Defense, the U.S. Department of the Navy, the Assistant Secretary of the Navy (Research, Development, Acquisition) Chief Engineer, and the Space and Naval Warfare Systems Command of the linked web sites, or the information, products or services contained therein. We have no control over the information on those systems which may be objectionable or which may not otherwise conform to Department of Navy policies. Unless otherwise noted, some of the Sites listed within the pages of this server(s) are provided by organizations outside the Navy Domain. These links are offered as a convenience and for informational purposes only. Their inclusion here does not constitute an endorsement or an approval by the Department of the Navy of any of the products, services, or opinions of the external providers. The Department of the Navy bears no responsibility for the accuracy or the content of external sites. For other than authorized activities such as military exchanges and Morale, Welfare and Recreation sites, the Department of Defense and the U.S. Navy do not exercise any editorial control over the information you may find at these locations. Such links are provided consistent with the stated purpose of this DoD Web site.

 <b>Associated Links</b>	 <b>Authoritative Databases</b>
<a href="#">Change Your Workspaces Password</a>	 <a href="#">Conference Room Calendars</a>
<a href="#">CORE, DOORS, and other Engineering and Collaboration Tools</a>	 <a href="#">Facilitate</a>
<a href="#">FAQ Frequently Asked Questions (FAQ)</a>	 <a href="#">InterchangeSE</a>
 <a href="#">NetMeeting (No longer available - click for details)</a>	 <a href="#">Phone Book</a>
<a href="#">QuickStart Instructions</a>	 <a href="#">Video Services</a>
<a href="#">Workspace Tips</a>	



# Integrated Naval Collaborative Capabilities *RDA CHIEF ENGINEER*

---

- Unite existing collaborative capabilities under a domain independent framework
  - Website and Workspaces
  - Tools and applications sharing
- Jointly define a long-term strategy for naval-wide collaborative capabilities



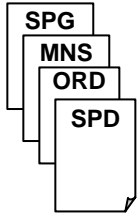
# NCEE Tools/Databases Integration Applications



# NCEE IEE Components

**RDA**  
**CHIEF**  
**ENGINEER**

**Requirement Documents**

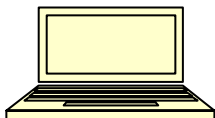


**Requirement Analysis & Verification**



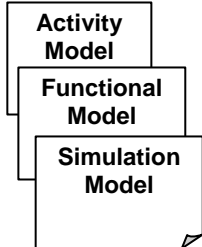
**DOORS**  
**NTIRA**

**Functional Analysis & Allocation**



**CORE**

**Function Information**



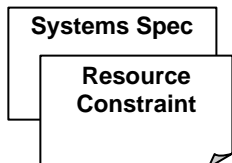
**Structured Requirements**



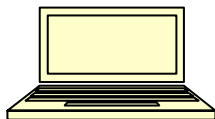
**Functional Baselines**



**Physical Implementation Information**



**Design Synthesis**



**Interchange Client**  
**CAD/CAM**



**Authoritative Data Bases**

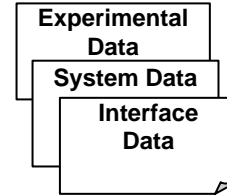
**AMPS**  
**IDR**  
**DARS**

**Interchange (Server)**

**CHENG Repository**

- Life Cycle Traceability
- Change Agent Notification
- System Representation
- Configuration Management
- Tools Integration

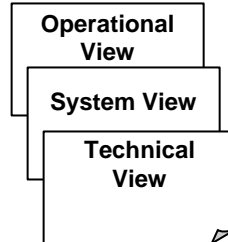
**Architecture Information**



**Architecture Representation**



**Rational Rose**  
**System Architect**  
**iUML**



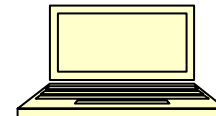
**Mission Analysis**



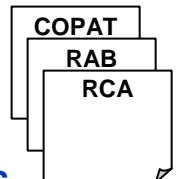
**NSS**



**LSSE Analysis**



**M&S**  
**COST MODELS**  
**HSI**  
**ENVISION/ERGO**

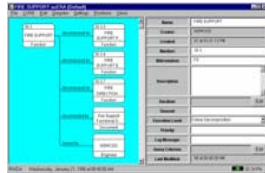




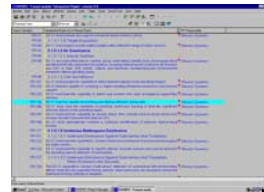
# IEE Repository Data View

**RDA**  
**CHIEF**  
**ENGINEER**

**Function Analysis  
(CORE)**



**Requirement Analysis  
(DOORS)**



**Data Repository Clients  
(Interchange)**



**System Cost  
(VAMOSC)**



**Manning Cost  
(COMET)**



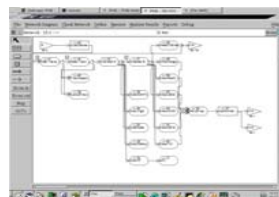
**Human/Environment  
3D Modeling  
(ENVISION/ERGO)**



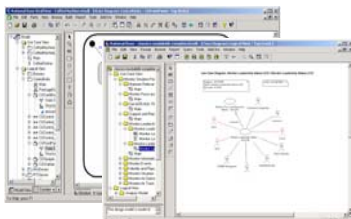
**AMPS**



**Human Performance  
Modeling (IPME)**



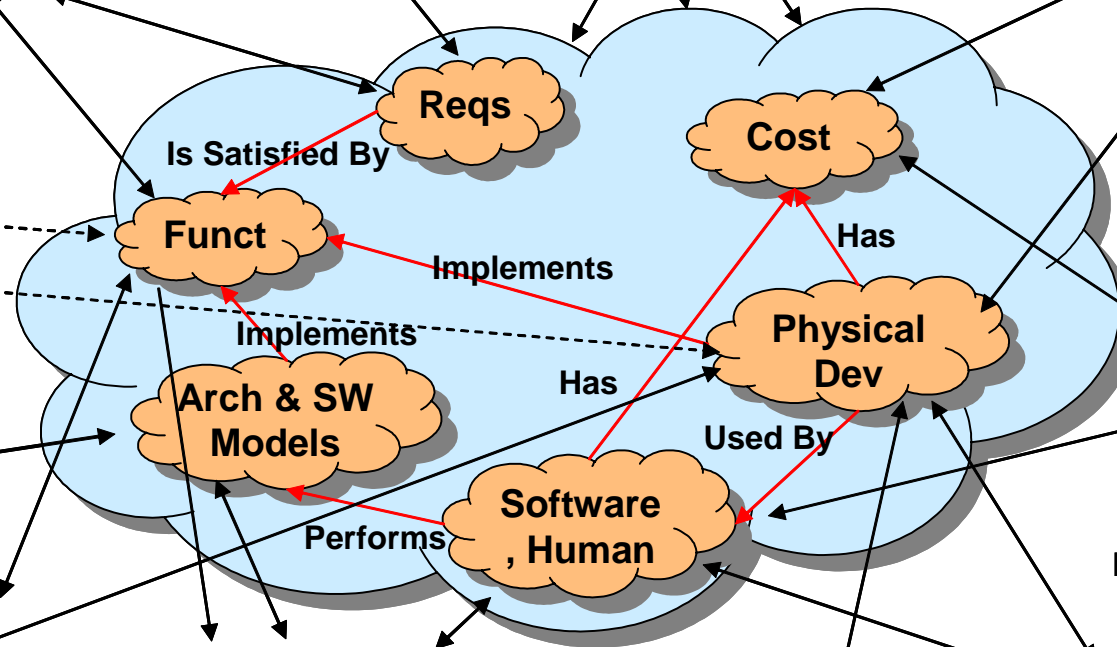
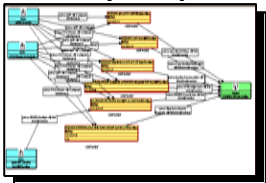
**Object-Oriented Analysis  
(Rose/RoseRT)**



**Architectures  
(System Arch, DARS)**



**Multi-Warfare  
Mission Simulation  
(NSS)**







# Interchange<sup>SE</sup> Information Repository **RDA CHIEF ENGINEER**

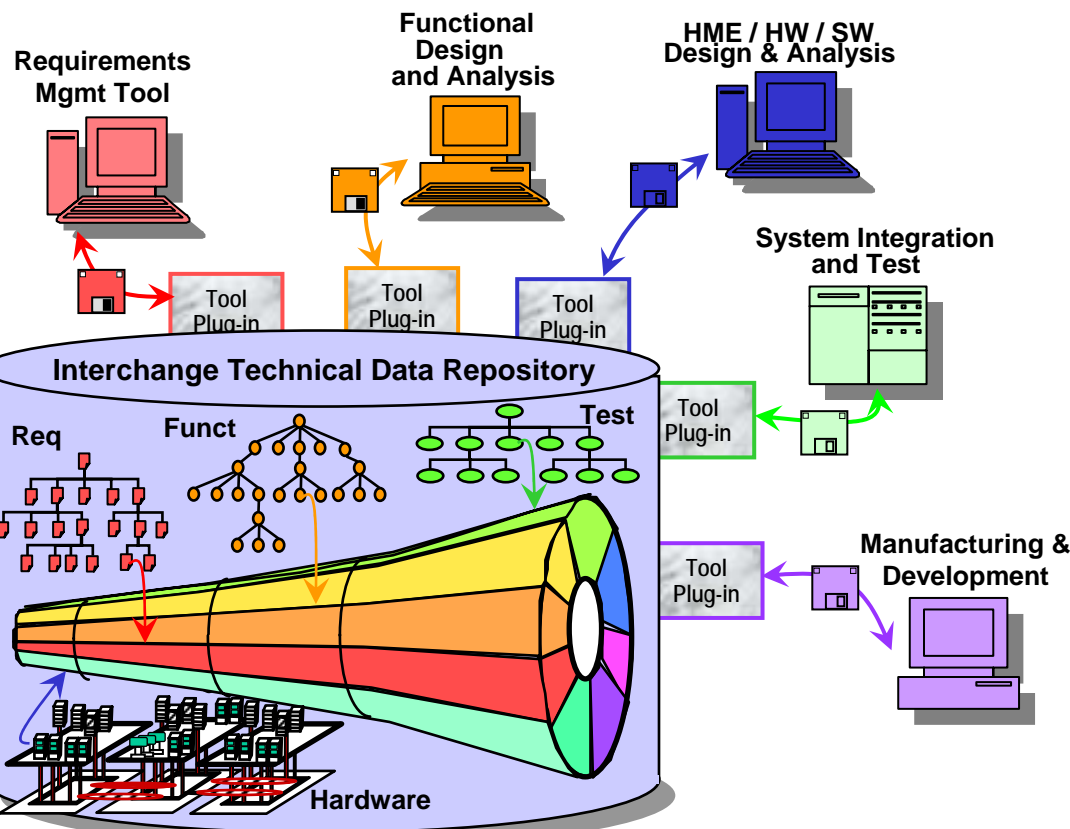
④ Controlled Secure Remote Access for Distributed Team Members

① Access to Technical Data from Across the Program

**Data Viewer**



**Web Interface**



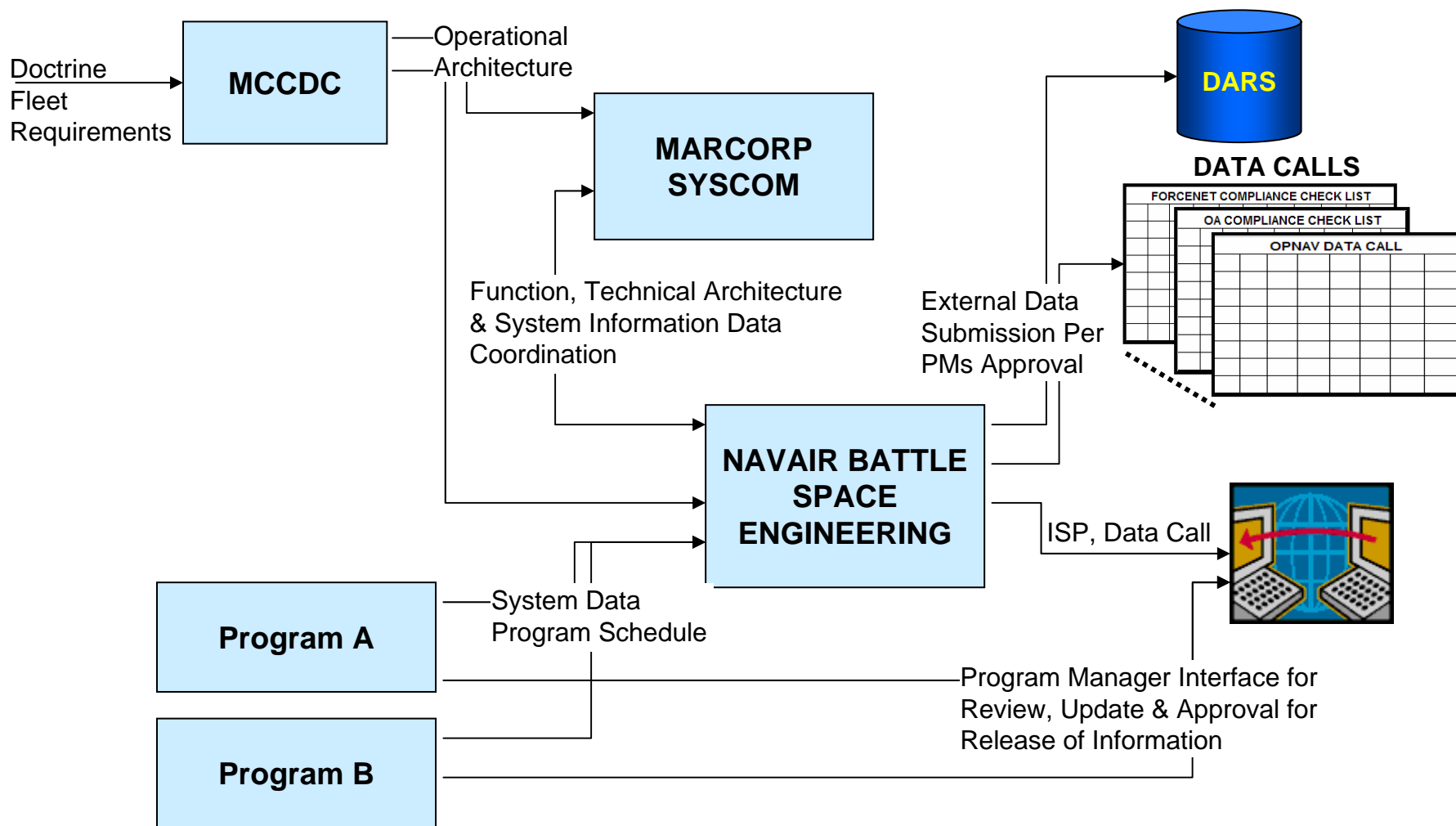
③ Reports and Analysis Tailored to Program Managements Needs

② Common Repository / Cache with Comprehensive Technical Schema and Bi-Directional Translators for Program Tools

**Interchange Integrates Program Data While Enabling Use of Existing and Emerging Tools and Processes**



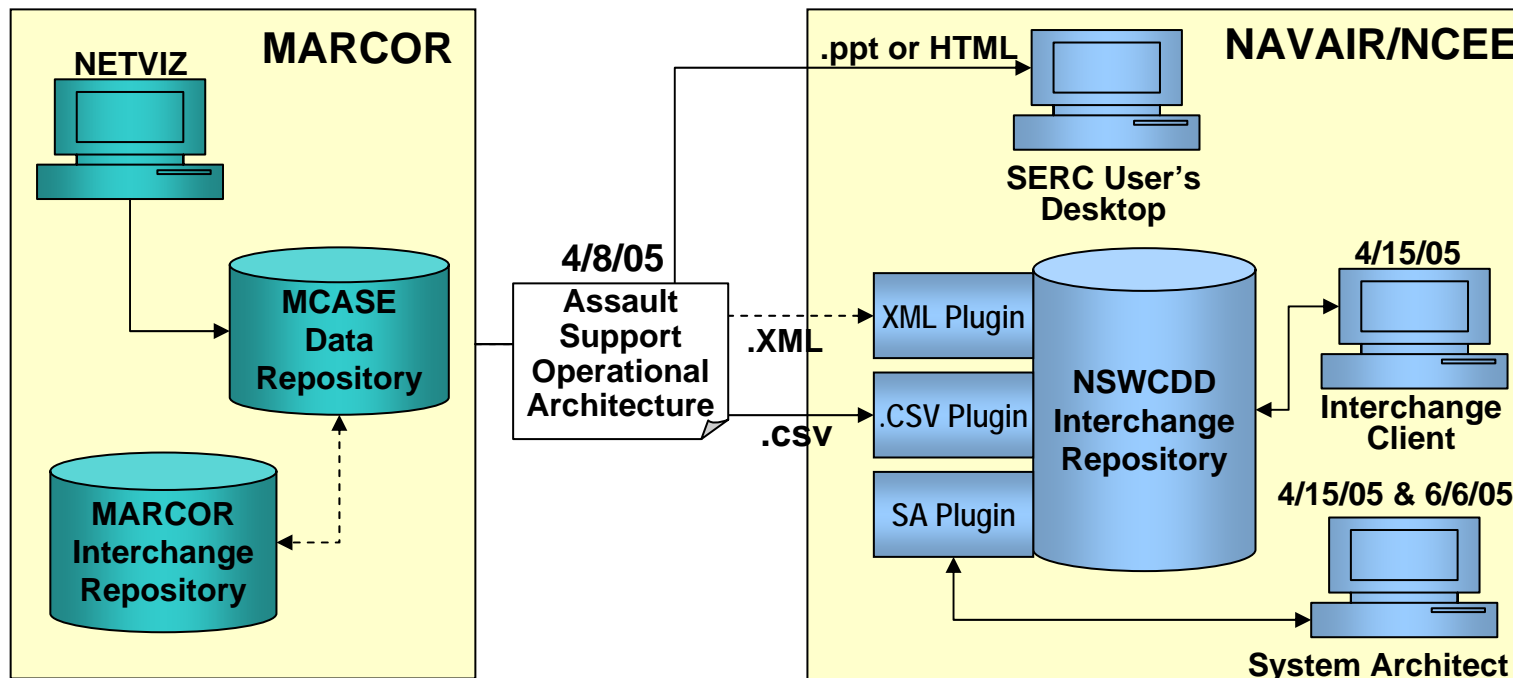
# NAVAIR-MARCORP Data Integration Pilot Project *RDA CHIEF ENGINEER*





# MCCDC/MCASE – NAVAIR Data Integration Status

**RDA**  
**CHIEF**  
**ENGINEER**



## Phase I – April 2005

- Conducted NCEE training
- Successfully executed data exchange mechanism (Netviz Excel format to Interchange to XML System Architect)
- Detected missing data content
- XML format data is not available for testing

## Phase II – June 2005

- Defined data requirements for MCCDC
- Conducted a second data pull from MCCDC and made available to NAVAIR in System Architect format



# DARS CADM XML Certification

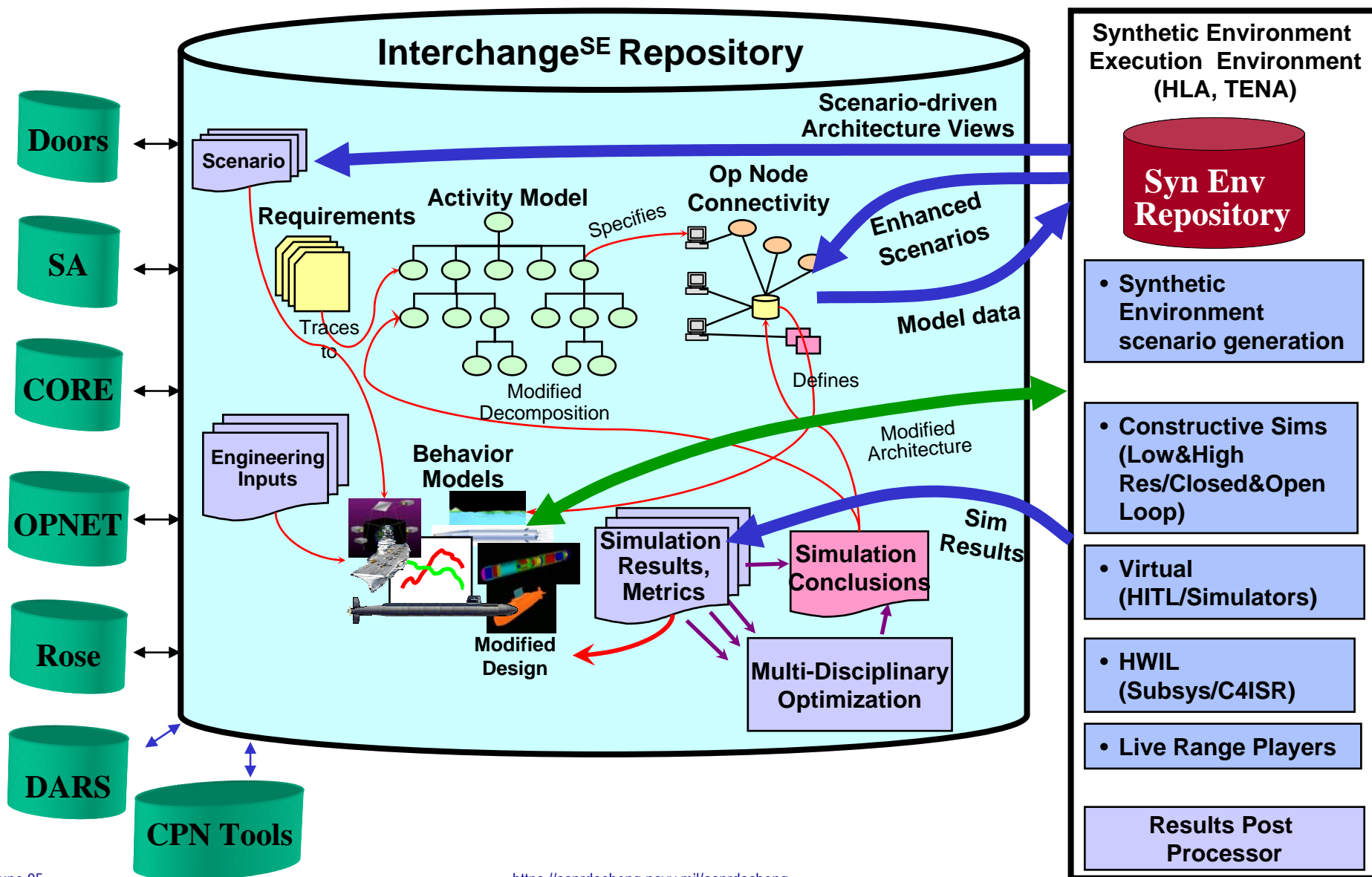
**RDA**  
**CHIEF**  
**ENGINEER**

- Phase 1 certification requirements include import/export capability in CADM XML format for AV-1, OV-2, OV-3, OV-5, SV-1 and TV-1
  - NCEE successfully passed OV-5 import/export and OV-2 and AV-1 import
  - Expect to complete phase 1 certification in August
  
- Phase 2 certification requirements include import/export capability in CADM XML format for AV-1, OV-2, OV-3, OV-5, SV-1, TV-1, AV-2, OV-6c, SV-2, SV-3, SV-4, SV-5, SV-6 and SV-10c
  - The number of tables covered under phase 2 has not been released
  - For the completion of each certification phase, a product is required to cover 434 tables



# Integrating Simulation & Analysis Across Acquisition Life Cycle Concept

RDA  
CHIEF  
ENGINEER



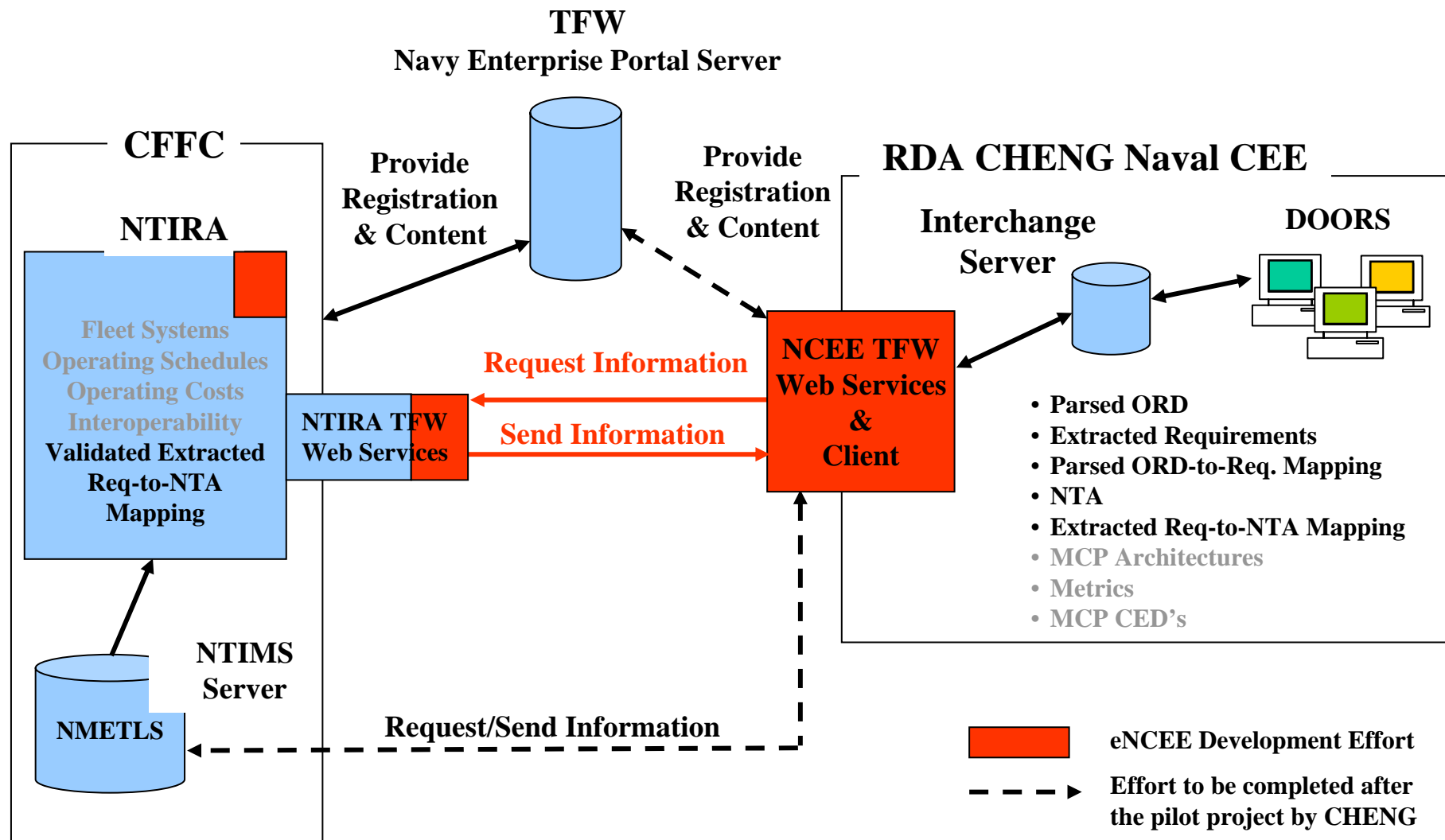




# NCEE Web Service / Web Enable Applications



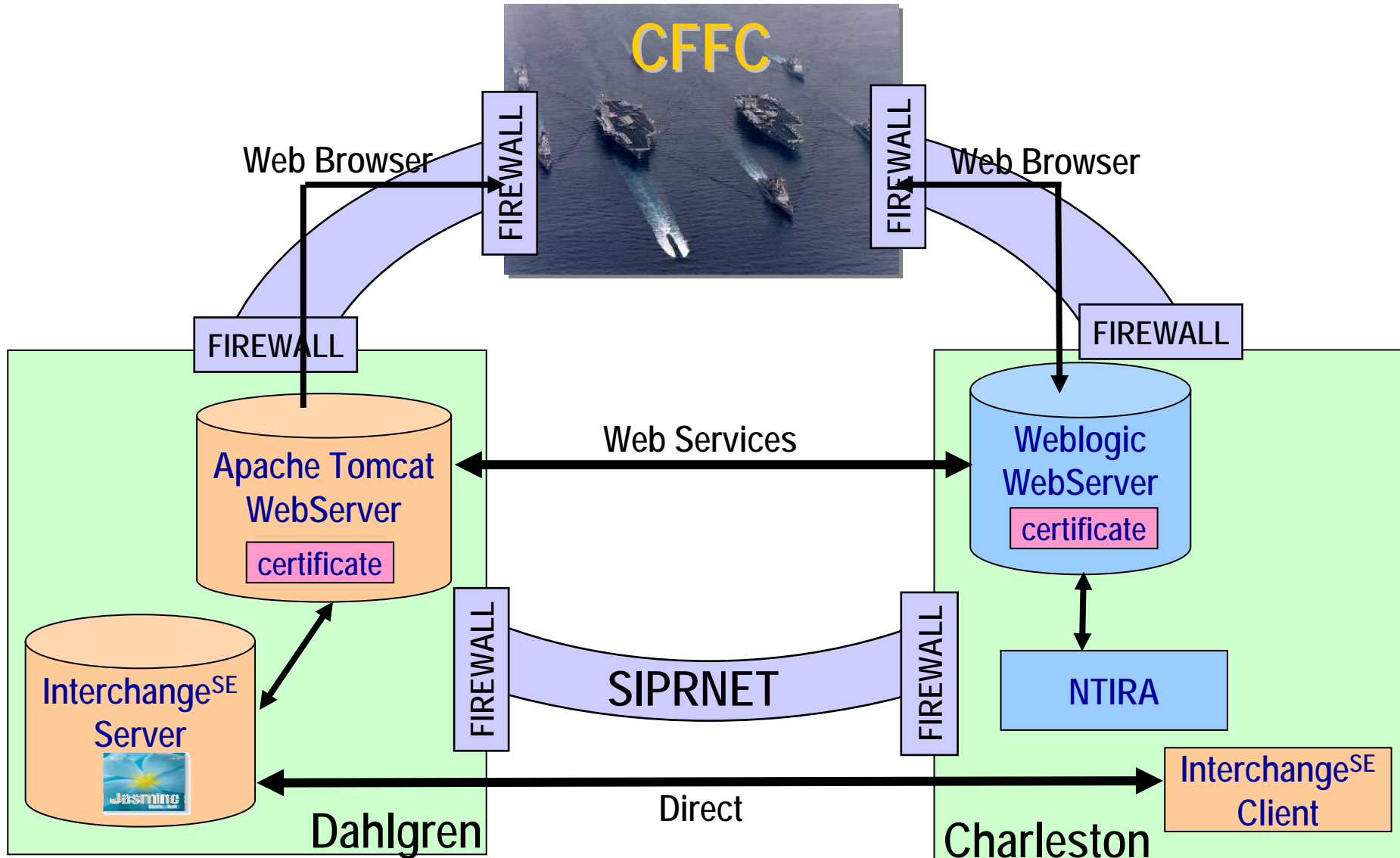
# CFFC-NCEE Data Exchange Implementation Concept RDA CHIEF ENGINEER





# CFFC-NCEE Data Exchange Physical Connections

RDA  
CHIEF  
ENGINEER





# Web Access Example – NCEE CSFL

RDA  
CHIEF  
ENGINEER



## ASN(RDA) CHENG

Naval Collaborative Engineering Environment

- [Obtain Login](#)
- [View CSFL](#)
- [View Comments](#)
- [Download CSFL](#)
- [Download CM Procedures](#)
- [Download Charter](#)
- [Download Adjudication Matrix](#)
- [Support](#)

Logged In: guest  
[Log Out](#)

## Welcome to the RDA CHENG CSFL Website


The DoN Common System Function List (CSFL) includes system functions and associated definitions supporting all aspects of war fighting, combat systems and related C4ISR; logistics and sustainment; and business and enterprise services activities. The CSFL is the SV-4 as described by the DoD Architecture Framework and provides the basis for identifying and assessing operational capability overlaps and gaps between legacy and developmental systems. A single CSFL provides the engineering basis and functional rigidity, within the paradigm of distributed development, to identify integration and interoperability issues within a system or family of systems.

	<u>Phase I</u>	<u>Phase II</u>	<u>Phase III</u>	<u>View Only</u>
Initial Standup (2003-2004)	22 Dec 03 - 30 Apr 04	1 May 04 - 31 May 04	1 Jun 04 - 30 Jun 04	1 Jul 04 - 31 Mar 05



# Information Disclosure










RDA  
CHIEF  
ENGINEER

**ASN(RDA) CHEM**  
*Naval Collaborative Engineering*

[Main Menu](#)  
[Support](#)

## System Functions

To search tree, 'Expand All' then use your browser's 'Find' feature.

-  **1.0 Combat**
  -  **1.1 Sense**
  -  **1.2 Command**
  -  **1.3 Act**
  -  **1.4 Interoperate**
-  **2.0 Sustainment**
-  **3.0 Business**
-  **4.0 Enterprise Application Support Services**
-  **5.0 Enterprise System Services**

[Expand All](#)[Collapse All](#)

**Definition Source: SIAP**

0 Comments





# Input Submission

RDA  
CHIEF  
ENGINEER

**ASN(RDA) C**  
*Naval Collaborative E*

▶ Main Menu  
▶ Support

## System Functions

To search tree, 'Expand All' then use your browser's 'Find' feature.

- 1.0 Combat
  - 1.1 Sense
  - 1.2 Command
  - 1.3 Act
  - 1.4 Interoperate
- 2.0 Sustainment
- 3.0 Business
- 4.0 Enterprise Application Support Services
- 5.0 Enterprise System Services

Expand All  
Collapse All

### Specify Function Definition and Justification for Adding to the CSFL

Enter Function Definition and Justification Here

### Specify Function Location

Insert this new function as

☒ Sibling ☐ Child

of the existing function

1.2 Command

Submit Comment



# Evaluation Disclosure

**RDA**  
**CHIEF**  
**ENGINEER**

Number	Function	Comment Type	Proposed Action	Old Definition	Proposed Definition or Change	Rationale	Recommendation
1.0	Combat	Significant	Change Definition	Directly support combat and mission operations	Provide functionality, environment, and tools to perform efficient management of combat systems. Functions include performance monitoring, fault localization, system recovery, system reconfiguration, and Information Assurance (including security, access controls, physical security, etc).		Do not concur. Recommended definition is not complete and does not accurately match the subfunctions.
1.1.1.1	Search	Administrative	Delete Function.	Observe an area of interest either passively, looking for energy emissions that conform to expected signals of interest, or actively, transmitting energy to detect objects of potential interest.	Search should be deleted and rolled up into 1.1.1 Single Sensor Sense, which should become Search. There is only one 4th level subfunction under 1.1.1, so 1.1.1.1 should be eliminated.		Concur with change.
1.1.1.1	Search	Significant	Change Definition	Observe an area of interest either passively, looking for energy emissions that conform to expected signals of interest, or actively, transmitting energy to detect objects of potential interest.	Observe / sense ambient environment (i.e. water depth, sound velocity profile, salinity) to determine sensor capabilities, range of the day, predict detection / counter-detection probabilities, etc. Observe / sense self-noise and determine vulnerability to counter-detection by expected combatants.		Do not concur. Recommended definition is too specific for "Search."
1.1.1.1.1.2	Process Underwater Signals	Minor	Change Definition	Process underwater signals to filter noise, ECM, and clutter, improve signal-to-interference ratio, amplify, or otherwise improve signals for reception, retransmission, or conversion to another format.	Process underwater signals to filter noise, counter measures, and clutter, improve signal-to-interference ratio, amplify, or otherwise improve signals for reception, retransmission, or conversion to another format.	ECM not meaningful underwater	Concur with change.
1.1.1.1.1.2	Process Underwater Signals	Minor	Global definition change.	N/A	Global document change for signal processing.) Change the phrase "conversion to another format" to "conversion to more tactically descriptive and useful information."		Concur with change.
1.1.1.1.1.4	ECM Signal Recognition	Minor	Change Function Name	Determine existence of ECM within measurements.	Change 1.1.1.1.4 ECM Signal Recognition to Counter Measures Signal Recognition	ECM not meaningful underwater	Concur with change.



# Policy Tool Prototype Web Access

RDA  
CHIEF  
ENGINEER

**Policy to Applicability Tool**

[Policies](#) [FAQ](#) [Help](#) [Feedback](#)

**Expand All** **Collapse All**

**Policy**

- ☒ **SNI 5000.2C POL**
  - Product**
    - ADM
    - APB
    - AoA
    - CDD
    - DT & E Report
    - ICD
    - ☒ **ISP**
  - Reference Document**
    - ☒ CJCSI 6212.01C - [Download Document](#)
    - ☒ DoDI 4630.8 - [Download Document](#)
    - ☒ SNI 5000.2C - [Download Document](#)
    - ☒ DoDI 5000.2 - [Download Document](#)
    - ☒ DoDD 4630.5 - [Download Document](#)

Expand the items on the left to explore the refer

The Reference section contains the actual docu  
Please be patient when accessing the complete  
are over 1 MByte in size.



# NCEE Information Management Applications



# Facilitate Navy Wide Data Management and Collaboration

**RDA**  
**CHIEF**  
**ENGINEER**

- Information Management Summit conducted in March 2005
  - Conducted survey on data call issues
  - Identified information management problem domain
  - Established workspace to facilitate discussions
  - Discussion topics
    - Naval collaborative operational process
    - Data collection standardization process
    - Data Taxonomy
- Post Information Management Summit progress
  - Draft Information Management IPT Charter available for review
  - Planning for the second IMS
  - Identifying pilot projects to resolve long and short- term information management issues





# Requirements Allocation & Traceability Example <sup>RDA</sup> <sup>CHIEF</sup> <sup>ENGINEER</sup>

## System Requirements

Integrate system design domains, enforce consistency across design baselines and eliminate engineering stovepipes

Functional Requirements Mapping

## System Functions

HW constraints

Functions Mapped to Hardware

Functions Mapped to Software

SW constraints

## System Cost

Dev Cost

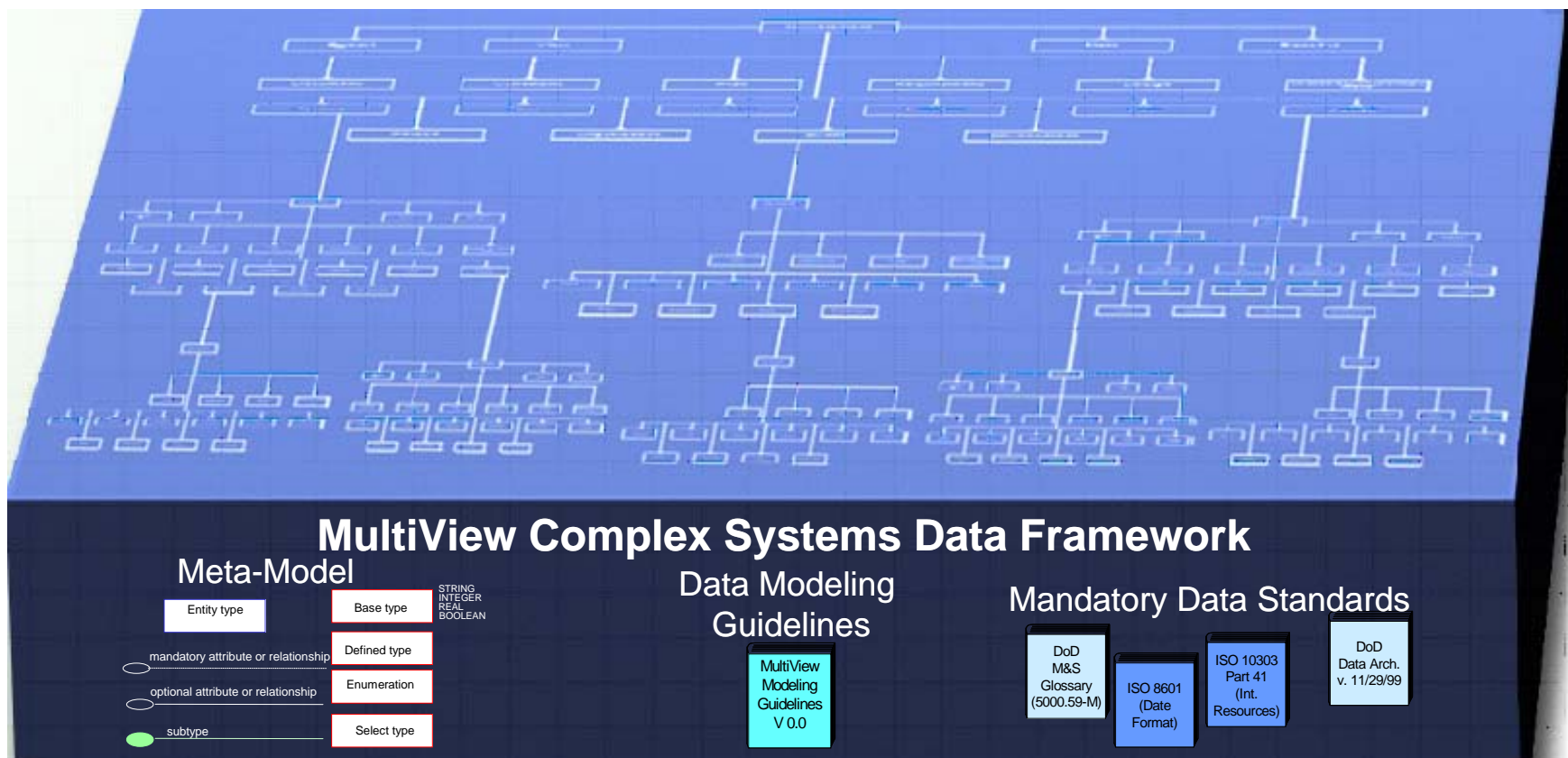
## System Architecture

## System Software



# Schema Development Approach and Key Schema Products

RDA  
CHIEF  
ENGINEER



- **Complex Systems Data Framework**
  - Set data representation boundaries
  - Identify & enforce schema rules

- **Initial DoD Data Schema Subset**
  - Validate framework
  - Pilot Program sample application

**A Solid, Standards-Based Foundation Paves the Way for Effective Transition**



# NCEE Data / Information Assessment Applications



# NCEE Activities Highlight NCEE Supports POM-04 and PR-05

RDA  
CHIEF  
ENGINEER

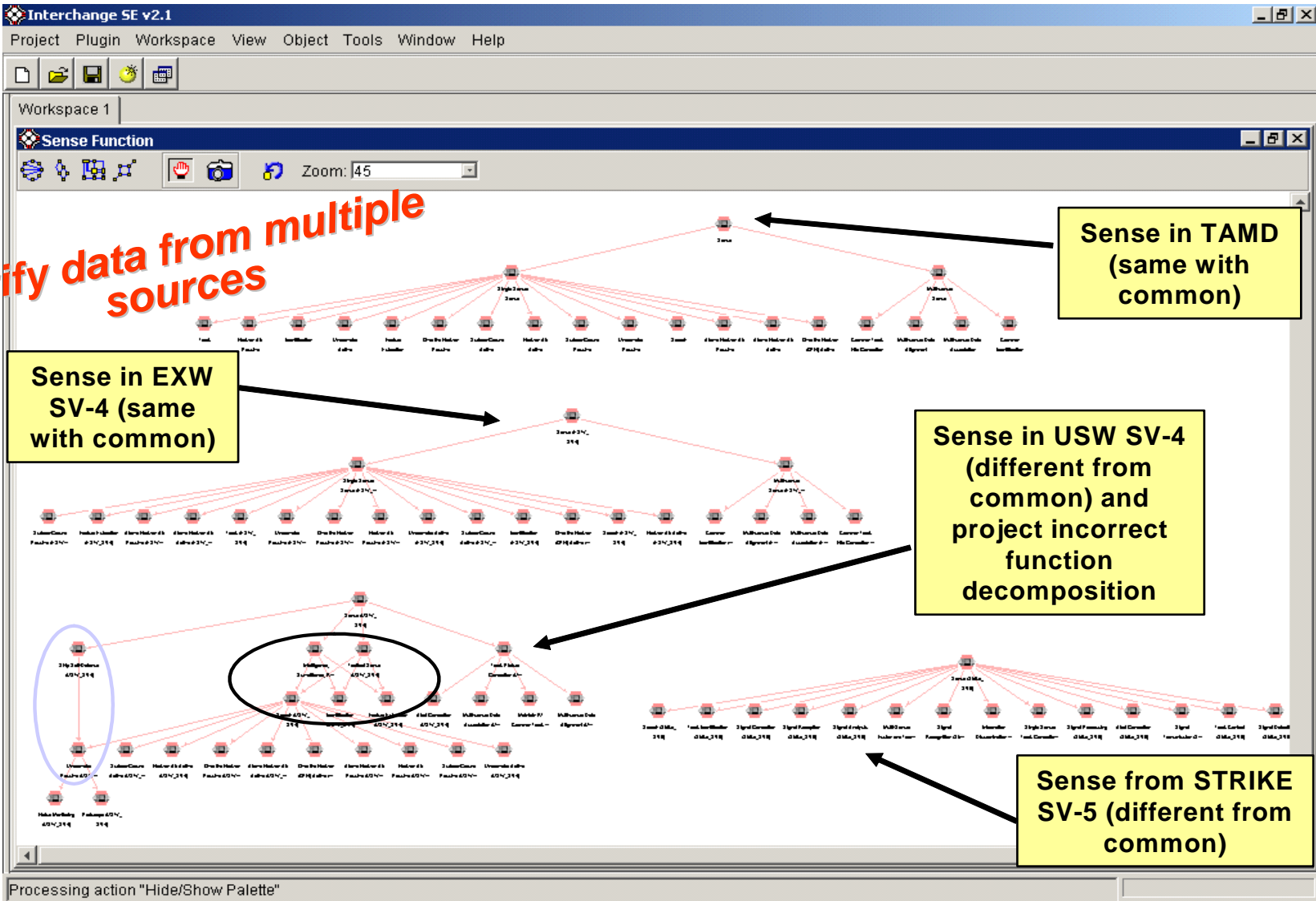
Verify data from multiple  
sources

Sense in EXW  
SV-4 (same  
with common)

Sense in TAMD  
(same with  
common)

Sense in USW SV-4  
(different from  
common) and  
project incorrect  
function  
decomposition

Sense from STRIKE  
SV-5 (different from  
common)





**RDA  
CHIEF  
ENGINEER**

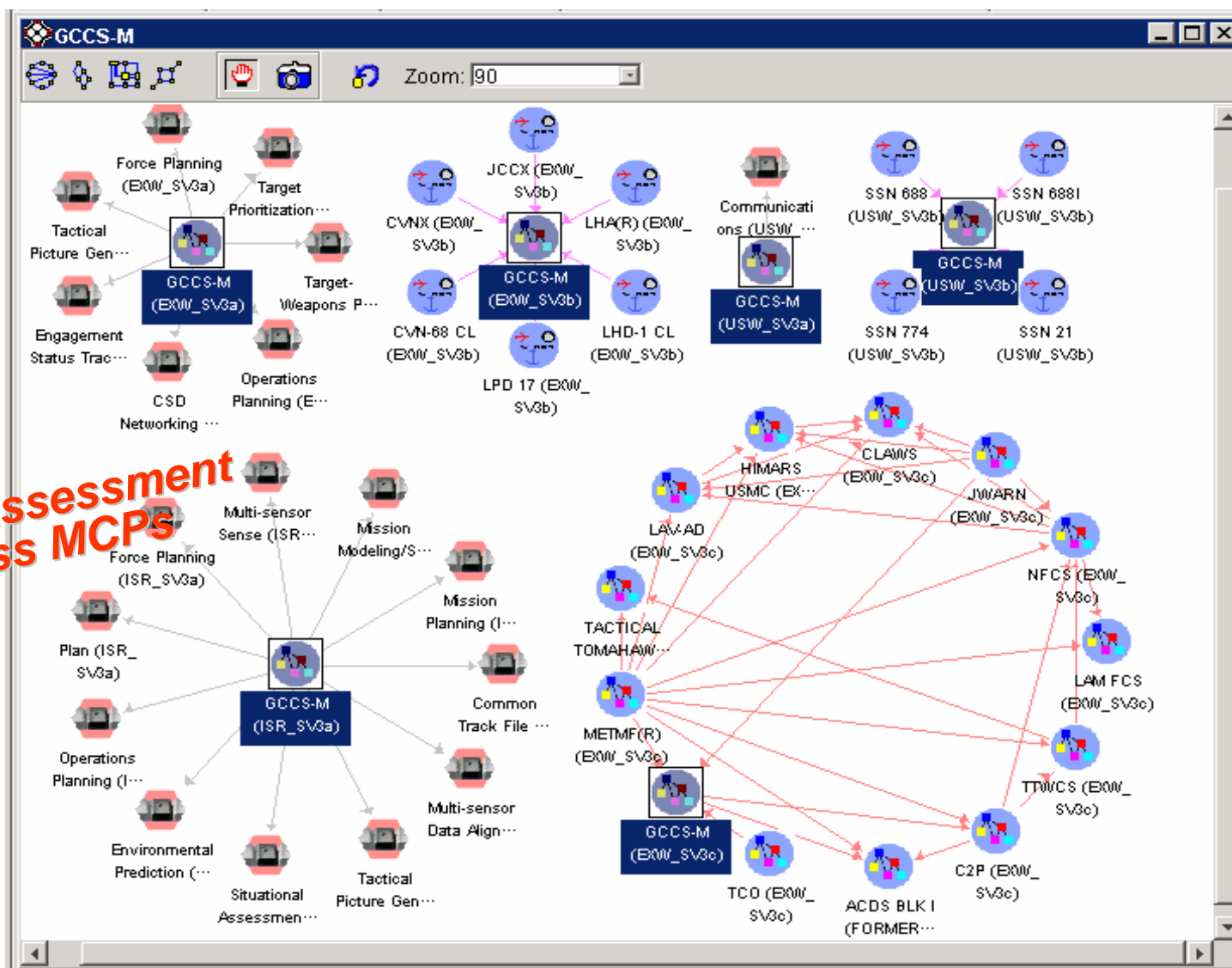






# NCEE Activities Highlight NCEE Supports POM-04 and PR-05

RDA  
CHIEF  
ENGINEER





# NCEE Activities Highlight NCEE Supports POM-04 and PR-05

RDA  
CHIEF  
ENGINEER

Web services report

Interchange SE - Microsoft Internet Explorer

Address: http://207.86.66.194:8080/Interchange/SystemAvailability?containerID=MCP%3A%3A1053%3A1052&yearAvailable=2006&view=table&Go=System+Availability

Interchange SE

TAMD\_SV8 System Availability

Platform	System	Year Available
<a href="#">AV-8B (TAMD_SV8)</a>	<a href="#">MC (AV-8B) (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">GPS (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">APG-65/73 (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">IFF (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">ALR-67 (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">ALQ-126 (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">ALQ-162 (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">GEN-X DECOY (TAMD_SV8)</a>	In Service:2002-2019
<a href="#">CG (TAMD_SV8)</a>	<a href="#">AWS LINEBACKER (TAMD_SV8)</a>	In Service:2002-2019
<a href="#">CG 47 (TAMD_SV8)</a>	<a href="#">CEC BLOCK 1 BASELINE 2.X (TAMD_SV8)</a>	In Service:2002-2012
	<a href="#">LINK- 4 (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">LINK-11 (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">GBS (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">HAWKLINK (C-BAND) (TAMD_SV8)</a>	In Service:2002-2008
	<a href="#">EHF SATCOM (TAMD_SV8)</a>	In Service:2002-2006
	<a href="#">UHF SATCOM (TAMD_SV8)</a>	In Service:2002-2010
	<a href="#">SHF SATCOM (TAMD_SV8)</a>	In Service:2002-2008
	<a href="#">IBS (TAMD_SV8)</a>	In Service:2002-2019
	<a href="#">NAVSSI (TAMD_SV8)</a>	In Service:2002-2019



# NCEE Ongoing Collaboration Efforts



# NCEE – Open Architecture Collaboration

**RDA**  
**CHIEF**  
**ENGINEER**

- Support the establishment of a neutral environment that could be used to enable long and short-term OA business areas
- Provide software reuse framework for OA integration
  - Open Ship Gridlock System/Automatic Correlation (SGS/AC) & Aircraft Carrier Tactical Support Center (CV/TSC) software reuse example problem
- Provide web access capabilities for OAET stakeholders to interface with industry
  - OA information and “Questions to the OAET”
  - OA repository for depositing information regarding vendor proposed OA solutions
- Provide workspaces and engineering tool environment for OA Surface Domain
  - Explore cross programs review process
  - Explore OA-FIBL alignment process

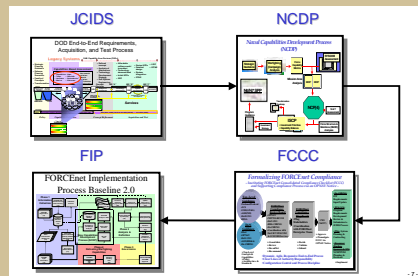


# Naval Collaborative Engineering Environment: FORCEnet Implementation Toolset Initiative

**RDA**  
**CHIEF**  
**ENGINEER**

## Naval Collaborative Engineering Environment

### FORCEnet and Related Processes



### FORCEnet Implementation Tools



**FIT is an Enterprise Requirements Management Initiative enabled  
Through the NCEE and Designed to Support Various Naval Processes  
and to Maximize Use of Existing IM / IT Infrastructure**

*From FCCC-FIBL Spiral 2 brief, 1 June 05, by Dan Green*



# NCEE – FIT/FIBL Alignment

**RDA**  
**CHIEF**  
**ENGINEER**

- Two technical exchange meetings were conducted between CHENG-NCEE and SPAWAR05
- Organizations informed each other on existing capabilities, requirements, and alignment objective
- Establishing pilot project to define the processes, data elements, and capabilities improvement for FIT/FIBL
  - E2C is current candidate
  - Pilot program plan is under development
- Identify additional areas of interest for alignment
  - Policy Decomposition Prototype implementation approach as candidate to support FCCC decomposition and traceability
  - Working in concert with SPG director





# Other Collaboration Efforts

**RDA**  
**CHIEF**  
**ENGINEER**

## ■ NCEE – NETWARCOM

- Establishing workspaces to provide collaborative capabilities for NETWARCOM IPTs
- Engaged with NETWARCOM in technology transition. Utilization of Interchange plugin (System Architect and CADM XML) to support the integration and dissemination of operational architecture data is of interest to NETWARCOM

## ■ NCEE – TTCP

- Defined Pilot Project to understand Coalition Fires process
- Aligned cross-countries operational activity lists
- Presented Coalition Collaborative Engineering Environment at ASNE conference
- Published in INSIGHT Magazine



# Points of Contact

**RDA**  
**CHIEF**  
**ENGINEER**

- NCEE Director  
Ms. Barbara Vaughn  
Barbara.J.Vaughn1@navy.mil  
202-781-4164
- CHENG Website Technical Support  
Mr. Ryan Hauck  
ryan.hauck@navy.mil  
843-218-6232
- CHENG Integrated Engineering Environment  
Ms. ND Hoang  
ND.hoang@jhuapl.edu  
240-228-3149